

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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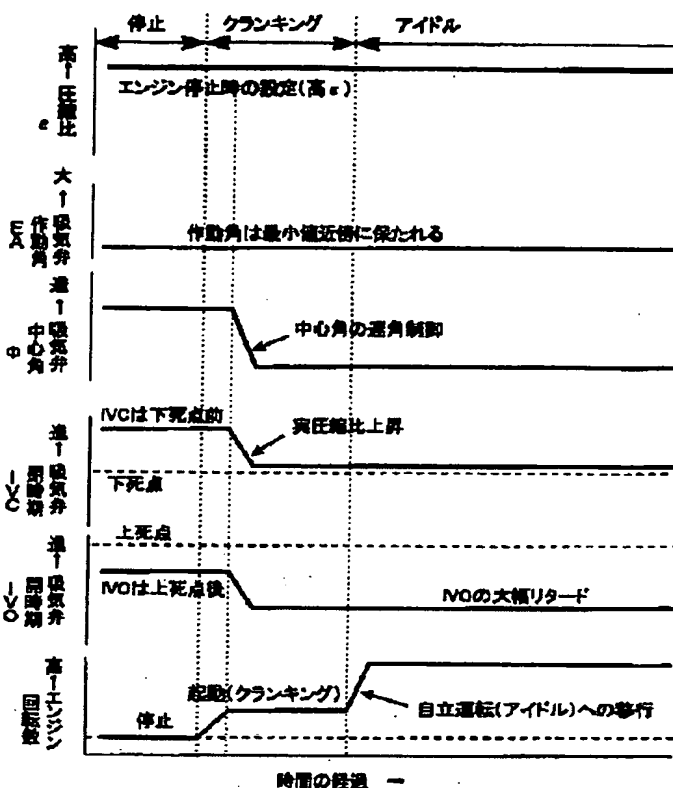
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TITLE : STARTING CONTROL DEVICE FOR  
INTERNAL COMBUSTION ENGINE



**ABSTRACT :** PROBLEM TO BE SOLVED: To improve starting performance at a cold time of an engine by controlling an actual compression ratio.

**SOLUTION:** This device is provided with a variable valve gear mechanism for varying and controlling an intake valve closing timing and a variable compression ratio mechanism for varying and controlling a compression ratio  $\epsilon$ . The variable valve gear mechanism is constituted of a lift/operating angle varying mechanism capable of continuously enlarging/reducing a lift/operating angle of the intake valve and a phase varying mechanism for changing a lift center angle  $\Phi$ . At an initial time of cranking, the actual compression ratio is lowered by quickening the intake valve closing timing, making the lift/operating angle small, and cranking rotating speed is quickly raised. After the cranking rotating speed is raised, the center angle  $\Phi$  is lagged, the actual compression ratio is enhanced together with the high compression ratio  $\epsilon$  at the time, and an intake air temperature is raised. As a result, an initial explosion is surely led to start the engine.

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